

Appl. No. : 10/760,127  
Filed : January 16, 2004

### AMENDMENTS TO THE CLAIMS

Please cancel Claims 1-5 and 12-20. Please add claims 21-31 as follows:

1. (Cancelled).
2. (Cancelled).
3. (Cancelled).
4. (Cancelled).
5. (Cancelled).

6. (Previously presented) A computer comprising:

a magnetic random access memory (MRAM) configured to store data in antiferromagnetically stabilized pseudo spin valves (ASPSVs) configuration, where an ASPSV comprises:

an antiferromagnetic layer;

a soft layer of ferromagnetic material disposed adjacent to the antiferromagnetic layer;

a spacer layer of non-ferromagnetic material disposed adjacent the soft layer; and

a hard layer of ferromagnetic material disposed adjacent the spacer layer such that the spacer layer is disposed between the hard layer and the soft layer.

7. (Previously presented) The computer as defined in Claim 6, wherein the antiferromagnetic layer comprises at least one alloy of manganese.

8. (Previously presented) The computer as defined in Claim 6, wherein the antiferromagnetic layer comprises ferro manganese (FeMn).

9. (Previously presented) The computer as defined in Claim 6, wherein a thickness of the antiferromagnetic layer is within a range of about 10 Angstroms (Å) to about 70 Å.

10. (Previously presented) The computer as defined in Claim 6, wherein the ferromagnetic material used in the hard layer and in the soft layer is the same, and where a thickness of the soft layer is between about 20% to about 80% of the thickness of the hard layer.

11. (Previously presented) The computer as defined in Claim 6, wherein the soft layer is in direct contact with the antiferromagnetic layer, where the spacer layer is in direct contact with the soft layer, and where the hard layer is in direct contact with the spacer layer.

12. (Cancelled).

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- 13. (Cancelled).
- 14. (Cancelled).
- 15. (Cancelled).
- 16. (Cancelled).
- 17. (Cancelled).
- 18. (Cancelled).
- 19. (Cancelled).
- 20. (Cancelled).

21. (New) The computer as defined in Claim 6, wherein the computer is embodied in a digital system.

22. (New) A computer comprising:

a magnetic random access memory (MRAM) configured to store data in antiferromagnetically stabilized pseudo spin valves (ASPSVs), where an ASPSV further comprises:

a spacer layer of non-ferromagnetic material;

a hard layer of ferromagnetic material adjacent the spacer layer, where the hard layer is adapted to store data as a magnetic orientation;

a soft layer of ferromagnetic material adjacent the spacer layer such that the spacer layer is disposed between the hard layer and the soft layer, where the soft layer is adapted to switch magnetic orientation to allow data to be read from the hard layer by detection of electrical resistance of the ASPSV;

an antiferromagnetic layer disposed on a side of the soft layer that is opposite to the spacer layer; and

an AFM interlayer disposed between the soft layer and the antiferromagnetic layer, where the AFM interlayer is not formed from an antiferromagnetic material.

23. (New) The computer as defined in Claim 22, wherein the AFM interlayer is about 1 Å to about 5 Å in thickness.

24. (New) The computer as defined in Claim 22, wherein the AFM interlayer is about a monolayer in thickness.

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25. (New) The computer as defined in Claim 22, wherein the AFM interlayer is less than a monolayer in thickness.

26. (New) The computer as defined in Claim 22, wherein the AFM interlayer comprises iridium (Ir).

27. (New) The computer as defined in Claim 22, wherein the AFM interlayer comprises at least one of copper (Cu), ruthenium (Ru), chromium (Cr), and aluminum (Al).

28. (New) The computer as defined in Claim 22, wherein the antiferromagnetic layer comprises an alloy of manganese.

29. (New) The computer as defined in Claim 22, wherein the antiferromagnetic layer comprises at least one of nickel oxide (NiO) and nickel cobalt oxide (NiCoO).

30. (New) The computer as defined in Claim 22, wherein the spacer layer is in direct contact with the hard layer, where the soft layer is in direct contact with the spacer layer, where the AFM interlayer is in direct contact with the soft layer, and where the antiferromagnetic layer is in direct contact with the AFM interlayer.

31. (New) The computer as defined in Claim 22, wherein the computer is embodied in a digital system.